

09/125700

Practitioner's Docket No. 200-008181-US(PAR)

CHAPTER II

TRANSMITTAL LETTER
TO THE UNITED STATES ELECTED OFFICE (EO/US)

(ENTRY INTO U.S. NATIONAL PHASE UNDER CHAPTER II)

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/EP97/00910	24 February 1997	28 February 1996
TITLE OF INVENTION		
RADIOTELEPHONE		
APPLICANT(S)		
FUHRMANN et al.		

Box PCT
Assistant Commissioner for Patents
Washington D.C. 20231

ATTENTION: EO/US

NOTE: The completion of those filing requirements that can be made at a time later than 30 months from the priority date results from the Commissioner exercising his judgment under the authority granted under 35 U.S.C. § 371(d). The filing receipt will show the actual date of receipt of the last item completing the entry into the national phase. See 37 C.F.R. § 1.491 which states: "An international application enters the national state when the applicant has filed the documents and fees required by 35 USC 371(c) within the periods set forth in § 1.494 and § 1.495."

CERTIFICATION UNDER 37 C.F.R. § 1.10*

(Express Mail label number is mandatory.)

(Express Mail certification is optional.)

I hereby certify that this Transmittal Letter and the papers indicated as being transmitted therewith is being deposited with the United States Postal Service on this date August 24, 1998, in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EL067095518US, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Deborah J. Clark

(type or print name of person mailing paper)

Deborah J. Clark

Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. § 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

***WARNING:** Each paper or fee filed by "Express Mail" **must** have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will **not** be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

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WARNING: Where the items are those which can be submitted to complete the entry of the international application into the national phase are subsequent to 30 months from the priority date the application is still considered to be in the international state and if mailing procedures are utilized to obtain a date the express mail procedure of 37 C.F.R. § 1.10 must be used (since international application papers are not covered by an ordinary certificate of mailing - See 37 C.F.R. § 1.8.

NOTE: Documents and fees must be clearly identified as a submission to enter the national state under 35 U.S.C. § 371 otherwise the submission will be considered as being made under 35 U.S.C. § 111. 37 C.F.R. § 1.494(f).

- I. Applicant herewith submits to the United States Elected Office (EO/US) the following items under 35 U.S.C. § 371:
- a. ☒ This express request to immediately begin national examination procedures (35 U.S.C. § 371(f)).
 - b. ☒ The U.S. National Fee (35 U.S.C. § 371(c)(1)) and other fees (37 C.F.R. § 1.492) as indicated below:

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(Ref. 74-12/97 Pub. 605)

FORM 13-18

13-161

2. Fees

CLAIMS FEE	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
<input type="checkbox"/> *	TOTAL CLAIMS				
	14	14 - 20 =	0	× \$22.00 =	\$ 0
	INDEPENDENT CLAIMS				
	2	2 - 3 =	0	× \$82.00 =	0
	MULTIPLE DEPENDENT CLAIM(S) (if applicable) + \$270.00				
BASIC FEE**	<input type="checkbox"/> U.S. PTO WAS INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where an international preliminary examination fee as set forth in § 1.482 has been paid on the international application to the U.S. PTO: <input type="checkbox"/> and the international preliminary examination report states that the criteria of novelty, inventive step (non-obviousness) and industrial activity, as defined in PCT Article 33(1) to (4) have been satisfied for all the claims presented in the application entering the national stage (37 CFR 1.492(a)(4)) \$98.00 <input type="checkbox"/> and the above requirements are not met (37 CFR 1.492(a)(1)) \$720.00 <input checked="" type="checkbox"/> U.S. PTO WAS NOT INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where no international preliminary examination fee as set forth in § 1.482 has been paid to the U.S. PTO, and payment of an international search fee as set forth in § 1.445(a)(2) to the U.S. PTO: <input type="checkbox"/> has been paid (37 CFR 1.492(a)(2)) \$790.00 <input type="checkbox"/> has not been paid (37 CFR 1.492(a)(3)) \$1,070.00 <input checked="" type="checkbox"/> where a search report on the international application has been prepared by the European Patent Office or the Japanese Patent Office (37 CFR 1.492(a)(5)) \$930.00				
	Total of above Calculations				= \$930.00
SMALL ENTITY	Reduction by 1/2 for filing by small entity, if applicable. Affidavit must be filed also. (note 37 CFR 1.9, 1.27, 1.28)				-
	Subtotal				
	Total National Fee				\$ 930.00
	Fee for recording the enclosed assignment document \$40.00 (37 CFR 1.21(h)). (See Item 13 below). See attached "ASSIGNMENT COVER SHEET".				
TOTAL	Total Fees enclosed				\$ 930.00

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*See attached Preliminary Amendment Reducing the Number of Claims.

- i. ☒ A check in the amount of 930.00 to cover the above fees is enclosed.
- ii. ☐ Please charge Account No. _____ in the amount of \$ _____.
A duplicate copy of this sheet is enclosed.

****WARNING:** "To avoid abandonment of the application the applicant shall furnish to the United States Patent and Trademark Office not later than the expiration of 30 months from the priority date: * * * (2) the basic national fee (see § 1.492(a)). The 30-month time limit may not be extended." 37 C.F.R. § 1.495(b).

WARNING: If the translation of the international application and/or the oath or declaration have not been submitted by the applicant within thirty (30) months from the priority date, such requirements may be met within a time period set by the Office. 37 C.F.R. § 1.495(b)(2). The payment of the surcharge set forth in § 1.492(e) is required as a condition for accepting the oath or declaration later than thirty (30) months after the priority date. The payment of the processing fee set forth in § 1.492(f) is required for acceptance of an English translation later than thirty (30) months after the priority date. Failure to comply with these requirements will result in abandonment of the application. The provisions of § 1.136 apply to the period which is set. Notice of Jan. 3, 1993, 1147 O.G. 29 to 40.

3. ☒ A copy of the International application as filed (35 U.S.C. § 371(c)(2)):

NOTE: Section 1.495 (b) was amended to require that the basic national fee and a copy of the international application must be filed with the Office by 30 months from the priority date to avoid abandonment. "The International Bureau normally provides the copy of the international application to the Office in accordance with PCT Article 20. At the same time, the International Bureau notifies applicant of the communication to the Office. In accordance with PCT Rule 47.1, that notice shall be accepted by all designated offices as conclusive evidence that the communication has duly taken place. Thus, if the applicant desires to enter the national stage, the applicant normally need only check to be sure the notice from the International Bureau has been received and then pay the basic national fee by 30 months from the priority date." Notice of Jan. 7, 1993, 1147 O.G. 29 to 40, at 35-36. See item 14c below.

- a. ☐ is transmitted herewith.
- b. ☐ is not required, as the application was filed with the United States Receiving Office.
- c. ☒ has been transmitted
- i. ☒ by the International Bureau.
Date of mailing of the application (from form PCT/13/308): 4 September 1997
- ii. ☐ by applicant on _____
Date

4. ☒ A translation of the International application into the English language (35 U.S.C. § 371(c)(2)):

- a. ☐ is transmitted herewith.
- b. ☒ is not required as the application was filed in English.
- c. ☐ was previously transmitted by applicant on _____
Date
- d. ☐ will follow.

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5. ☒ Amendments to the claims of the International application under PCT Article 19 (35 U.S.C. § 371(c)(3)):

NOTE: The Notice of January 7, 1993 points out that 37 C.F.R. § 1.495(a) was amended to clarify the existing and continuing practice that PCT Article 19 amendments must be submitted by 30 months from the priority date and this deadline may not be extended. The Notice further advises that: "The failure to do so will not result in loss of the subject matter of the PCT Article 19 amendments. Applicant may submit that subject matter in a preliminary amendment filed under section 1.121. In many cases, filing an amendment under section 1.121 is preferable since grammatical or idiomatic errors may be corrected." 1147 O.G. 29-40, at 36.

- a. ☐ are transmitted herewith.
 - b. ☐ have been transmitted
 - i. ☐ by the International Bureau.
Date of mailing of the amendment (from form PCT/1B/308): _____
 - ii. ☐ by applicant on (date) _____
Date _____
 - c. ☒ have not been transmitted as
 - i. ☒ applicant chose not to make amendments under PCT Article 19.
Date of mailing of Search Report (from form PCT/ISA/210.): 18 June 1997
 - ii. ☐ the time limit for the submission of amendments has not yet expired.
The amendments or a statement that amendments have not been made will be transmitted before the expiration of the time limit under PCT Rule 46.1.
6. ☒ A translation of the amendments to the claims under PCT Article 19 (38 U.S.C. § 371(c)(3)):
- a. ☐ is transmitted herewith.
 - b. ☐ is not required as the amendments were made in the English language.
 - c. ☒ has not been transmitted for reasons indicated at point 5(c) above.
7. ☒ A copy of the international examination report (PCT/IPEA/409)
- ☒ is transmitted herewith.
 - ☐ is not required as the application was filed with the United States Receiving Office.
8. ☐ Annex(es) to the international preliminary examination report
- a. ☐ is/are transmitted herewith.
 - b. ☐ is/are not required as the application was filed with the United States Receiving Office.
9. ☐ A translation of the annexes to the international preliminary examination report
- a. ☐ is transmitted herewith.
 - b. ☐ is not required as the annexes are in the English language.

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10. ☒ An oath or declaration of the inventor (35 U.S.C. § 371(c)(4)) complying with 35 U.S.C. § 115
- a. ☐ was previously submitted by applicant on _____
Date
- b. ☐ is submitted herewith, and such oath or declaration
- i. ☐ is attached to the application.
- ii. ☐ identifies the application and any amendments under PCT Article 19 that were transmitted as stated in points 3(b) or 3(c) and 5(b); and states that they were reviewed by the inventor as required by 37 C.F.R. § 1.70.
- iii. ☒ will follow.

II. Other document(s) or information included:

11. ☒ An International Search Report (PCT/ISA/210) or Declaration under PCT Article 17(2)(a):
- a. ☒ is transmitted herewith.
- b. ☒ has been transmitted by the International Bureau.
Date of mailing (from form PCT/IB/308): 4 September 1997
- c. ☐ is not required, as the application was searched by the United States International Searching Authority.
- d. ☐ will be transmitted promptly upon request.
- e. ☐ has been submitted by applicant on _____
Date
12. ☒ An Information Disclosure Statement under 37 C.F.R. §§ 1.97 and 1.98:
- a. ☒ is transmitted herewith.
Also transmitted herewith is/are:
- ☒ Form PTO-1449 (PTO/SB/08A and 08B).
- ☒ Copies of citations listed.
- b. ☐ will be transmitted within THREE MONTHS of the date of submission of requirements under 35 U.S.C. § 371(c).
- c. ☐ was previously submitted by applicant on _____
Date
13. ☐ An assignment document is transmitted herewith for recording.
A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.

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14. ☒ Additional documents:

- a. ☒ Copy of request (PCT/RO/101)
- b. ☒ International Publication No. WO 97/32424
- i. ☒ Specification, claims and drawing
- ii. ☐ Front page only
- c. ☒ Preliminary amendment (37 C.F.R. § 1.121)
- d. ☒ Other

PCT/IPEA/416; PCT/ISA/220; PCT/IPEA/40815. ☒ The above checked items are being transmitted

- a. ☒ before 30 months from any claimed priority date.
- b. ☐ after 30 months.

16. ☐ Certain requirements under 35 U.S.C. § 371 were previously submitted by the applicant on _____, namely:

AUTHORIZATION TO CHARGE ADDITIONAL FEES

WARNING: Accurately count claims, especially multiple dependant claims, to avoid unexpected high charges if extra claims are authorized.

NOTE: "A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).

NOTE: "Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

☒ The Commissioner is hereby authorized to charge the following additional fees that may be required by this paper and during the entire pendency of this application to Account No. 16-1350

☒ 37 C.F.R. § 1.492(a)(1), (2), (3), and (4) (filing fees)

WARNING: Because failure to pay the national fee within 30 months without extension (37 CFR § 1.495(b)(2)) results in abandonment of the application, it would be best to always check the above box.

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☒ 37 C.F.R. § 1.492(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.492(d)), it might be best not to authorize the PTO to charge additional claim fees, except possible when dealing with amendments after final action.

☒ 37 C.F.R. § 1.17 (application processing fees)

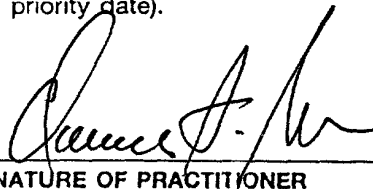
☐ 37 C.F.R. § 1.17(a)(1)-(5) (extension fees pursuant to § 1.136(a).

☐ 37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

NOTE: 37 C.F.R. § 1.28(b) requires "Notification of any change in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying . . . issue fee." From the wording of 37 C.F.R. § 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

☒ 37 C.F.R. § 1.492(e) and (f) (surcharge fees for filing the declaration and/or filing an English translation of an International Application later than 30 months after the priority date).



SIGNATURE OF PRACTITIONER

Clarence A. Green

(type or print name of practitioner)

PERMAN & GREEN, LLP

P.O. Address

425 Post Road, Fairfield, Connecticut 06430, USA

Reg. No.: 24,622

Tel. No.: (203) 259-1800

Customer No.:

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Express Mail No.: EL067095518US

In re Application of: FUHRMANN et al.

INTERNATIONAL APPLICATION NO.: PCT/EP97/00910

INTERNATIONAL FILING DATE: 24 February 1997

U.S. SERIAL NUMBER:

FILING DATE: Herewith

TITLE: RADIOTELEPHONE

ATTORNEY DOCKET NO.: 200-008181-US(PAR)

Box PCT

The Commissioner of Patents and Trademarks

Washington, D.C. 20231

PRELIMINARY AMENDMENT

Dear Sir:

Please amend the above-identified, enclosed patent application as follows:

IN THE CLAIMS:

Please amend Claims 3, 5, 6, 7, 9, 10, 11, 12 and 13 as shown below.

Claim 3, line 1, delete "or 2".

Claim 5, line 1, delete "or 4".

Claim 6, line 1, delete "any of claims 3 to 5" and insert -- claim 3 --.

Claim 7, line 1, delete "any preceding claim" and insert -- claim 1 --.

Claim 9, line 1, delete "any preceding claim" and insert -- claim 1 --.

Claim 10, line 1, delete "any preceding claim" and insert -- claim 1 --.

Claim 11, line 1, delete "any preceding claim" and insert -- claim 1 --.

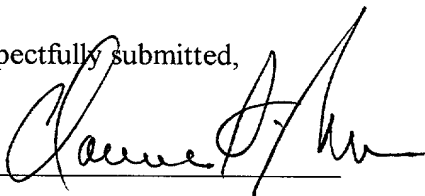
Claim 12, line 1, delete "or 11".

Claim 13, line 1, delete "or 12".

REMARKS

Prior to calculation of the fees, please enter this preliminary amendment.

Respectfully submitted,



Clarence A. Green, Reg. No. 24,622
PERMAN & GREEN, LLP
425 Post Road
Fairfield, CT 06430
(203) 259-1800

24 Aug 98
Date

09/125700

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RADIOTELEPHONE

This invention relates to a radiotelephone.

It has become desirable to be easily able to replace housing parts of radiotelephones. For example, customers may want to replace a broken or scratched housing for repair purposes, or to change the appearance of a radiotelephone by replacing its housing with another of a different appearance. Also, there may be a need for radiotelephones to be supplied to dealers without being fully housed, so that the dealers can fit distinctive housings of their own before the radiotelephones are sold. Normally it is the user interface housing of the phone that is replaced in this way.

Normally, when housing parts of a phone, especially user interface housing parts, are removed the internal components of the phone become loose and/or exposed and there is a significant risk of them being damaged. This makes it risky for unskilled people to replace the phone's housing parts, or for phones to be shipped in a partially housed state.

According to the present invention from one aspect there is provided: an electronic radiotelephone comprising: a first housing; a second housing releasably attachable to the first housing to meet with the first housing around the periphery of the radiotelephone; and retaining means comprising a cover, for holding the electronic components of the radiotelephone to the first housing when the second housing is released from attachment with the first housing.

The cover may extend over all or some of the electronic components of the phone. If the cover does not extend over all the components then the retaining means may comprise further articles such as a circuit board or another cover. The cover preferably retains user interface components such as a microphone, a

speaker, a display or a keymat. The cover preferably has means to allow communication between the retained user interface components and a user - for example a transparent or translucent portion, a deformable portion or a hole or aperture. The cover may hold one or more seals behind it, preferably for sealing around user interface components and, most preferably, associated apertures.

The cover is preferably attachable to the first housing, either directly or via other components of the retaining means. The cover is most preferably releasably attachable - for example by spring clips.

The first and second housings preferably provide front and rear outer casings for the radiotelephone. The housings preferably meet around substantially all of the perimeter of the radiotelephone, although there may suitably be regions where they do not meet - for example to provide access to the interior of the phone (e.g. for connectors).

At least one user interface component may be held captive between the second housing and the retaining means when the second housing is attached to the first housing. That said component is preferably a component which is visible, most preferably over a substantial region of the surface of the radiotelephone, when the radiotelephone is assembled. The component is preferably a keymat.

The cover preferably holds a keymat and/or a member that provides at least one user-actuable key to the first housing.

According to the present invention from a second aspect there is provided an electronic device having a housing which has a housing wall with openings for control elements and/or display elements, characterised by attachment means for detachably connecting to the housing an external wall element which at least partially covers the housing wall, the external wall element having openings which are aligned with the openings in the housing wall.

When the housing wall provided with openings is covered by the external wall element, the openings provided in the housing wall and in the external wall element are preferably aligned with one another so that for example the push-button keys which may project through the openings can continue to be used even after the external wall element is fitted on to the housing wall and/or so that display elements which may be inserted into the openings can be read. This preferably also applies to microphones or loudspeakers which may be inserted into the openings - for example in the case of cordless telephones.

By means of either aspect of the invention, the electronics provided in the device may suitably be protected against access by the customer when the external appearance of the housing is modified. Then, if one external wall element is to be replaced by another in order to give the electronic device a new design there is a reduced risk of the electronics present in the housing being damaged when the external wall elements are interchanged, or of the user being subjected to danger by the electronics present inside the housing. The external wall elements could even be interchanged when an electronic device is operating.

According to an advantageous refinement of the invention, the external wall element can engage, at least partially, over further housing walls of the housing so that the design of the housing can be modified to an even greater extent or adapted to the wishes of the user to an even greater degree.

The profile of the external wall element can preferably follow the profile of the housing walls of the housing, for instance if emphasis is being placed not so much on the modification of the shape of the housing but on changing the colour or the type of material of the housing. Alternatively, the external wall elements can have different shapes (which can also deviate from one another to a greater degree) provided it is ensured that after the respective external wall elements have been connected to the housing respective openings in the fitted-

on external wall element and in the housing wall in question are aligned with one another.

The external wall element can preferably be of, for example, shell-shaped design so that it can be fitted for example with one edge on to a base which projects outwards beyond the side walls of the housing.

Any desired attachment means can be used to attach the external wall element to the housing of the electronic device, but attachment means with press-on/catch closure can preferably be used. They preferably ensure a secure connection between the external wall element and the housing and, moreover, can suitably be easily used without a special tool being required for them.

The present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

figure 1 shows a radiotelephone of a first embodiment with its external wall element removed;

figure 2 shows the radiotelephone of figure 1 with the external wall element fitted;

figure 3 shows a view of the interior of housing 14 of the radiotelephone of figure 1;

figure 4 shows a cross-section through part of the housing of figure 3; and

figure 5 shows an exploded view of a second embodiment of the invention.

The invention is explained below with reference to two embodiments of mobile phone.

Figure 1 shows a mobile phone having a housing 1 with which a plate-shaped base element 2 and a shell-shaped housing element 3 are associated. The plate-

shaped based element 2 and the shell-shaped housing element 3 are connected to one another using screws (not illustrated) which project upward through openings 4 in the shell-shaped housing element 3 and are screwed into sockets (not illustrated) which are fixedly connected to the inside of the plate-shaped base element 2. Inside the housing 1 there is a carrier plate or circuit board for electronic components etc., attached in a suitable way.

The shell-shaped housing element 3 has a housing wall 5 which is disposed essentially parallel with the plate-shaped base element 2 and located at a distance therefrom and is integral with side walls 6 which are supported with their free or lower edge on the plate-shaped base element 2. In this arrangement, the plate-shaped base element 2 projects outwards beyond the side walls 6 by constant distance in its edge region so that a profile with an identical contour is obtained.

In the housing wall 5 there is a plurality of through-openings 7 through which components inside the housing 1 partially project. The through-openings 7 can be provided for, for example, push-button keys 8, a display device 9 or a loudspeaker device/microphone device 10. A corresponding through-opening may also be present in the rear side wall 6' for an aerial.

On each of the side walls 6 extending in the longitudinal direction of the housing 1 there are two attachment means 11, at a distance from one another, which are designed as push fit/catch closures. They are located in each case near the front and rear ends of the telephone. The attachment means 11 have a catch projection 12 which is biased outwards in a sprung fashion and can be pressed inwards into the housing 1 against the outwardly acting spring force by means of an externally accessible activation element 13. The attachment means serve to attach to the housing 1 an external wall element 14 which is fitted over the shell-shaped housing element 3 and is also of shell-shaped design.

The shell-shaped external wall element 14 which is illustrated in Figure 1 has approximately the same contour as the shell-shaped cover 3 but is designed in such a way that it can receive the shell-shaped housing element 3 in it. If the external wall element 14, which is designed as a thin-walled shell, is fitted on to the shell-shaped housing element 3, the shell-shaped external wall element 14 is supported with the free or downwardly pointing edge of its side walls on that part of the plate-shaped base element 2 which projects outwards beyond the shell-shaped housing element 3. Here, the wall thickness of the side walls of the shell-shaped external wall element 14 corresponds to the distance by which the edge of the plate-shaped base element 2 projects outwards beyond the side walls 6, 6' of the shell-shaped housing element 3. As a result, no step remains in the connection area between the shell-shaped external wall element 14 and the plate-shaped base element 2. The height of the side walls of the shell-shaped external wall element 14 can be selected such that the main face of the external wall element 14 comes to rest at a short distance from the housing wall 5 and as a result does not exert any pressure on the latter.

Openings 7', which are aligned with the openings 7 in the housing wall 5 of the shell-shaped housing element 3, are provided in the main face of the external wall element 14. Therefore, it is possible to continue to operate the telephone even when the external wall element 14 is fitted on to the shell-shaped housing element 3. At the same time, the push-button keys 8 can be of such a height that they also project outwards beyond the external wall element 14. Openings which are present in the external wall element 14 for the display device 9 and the loudspeaker device/microphone device 10 can be covered, for example by means of a transparent element 15 or a grille 16.

Figure 2 shows the cordless telephone or mobile phone in a state in which the shell-shaped external wall element 14 is fitted on to the shell-shaped housing element 3 and is detachably connected to the housing 1. On the internal faces of the long side walls of the external wall element 14 there are notches for the

catch projections 12 of the attachment means 11 so that the catch projections 12 engage in the notches as a result of the outwardly pressing spring force, and thus hold the external wall element on the housing 1. In this state, the activation elements 13 are also pushed outwards but only to such an extent that they do not project beyond the side edge of the plate-shaped base element 2 or of the external wall element 14. The activation elements 13 can extend here in a groove 17 in the upper face of the plate-shaped base element 2. If the activation elements 13 are pressed inwards, that is to say inwards along the groove 17, for example using a pointed object, they move the catch projections 12 correspondingly inwards along with them so that the said catch projections 12 disengage from the notches on the inside of the side walls 6 of the external wall element 14. The external wall element 14 can then be removed from the housing 1.

The external wall element 14 is fitted on to the housing 1 by simply pressing it on. The catch projections 12 then engage automatically in the notches.

Figure 5 shows an exploded view of another embodiment. The mobile phone of figure 5 has two outer housings 18, 19. The housings mate together around the periphery of the phone to enclose almost all of the phone's components.

The lower housing 18 has a rear recess 18a, to accommodate a first circuit board 20, and a front shelf 18b to provide support behind the phone's keypad. The circuit board 20 carries and connects together electronic components, including RF (radio frequency) components shielded within RF shields 21. A two-part connector 22 is provided to allow for push-fit electrical connection between circuit board 20 and a second circuit board 23. Circuit board 23 carries other electronic components, including a buzzer 24 (for generating a telephone ringing tone) and an electrical connector 25 (for allowing external connections to be made to the phone - for example to program the phone or connect an external antenna).

A microphone 26 fits in a recess 25a in the connector block. The microphone is surrounded by a rubber sleeve or an o-ring 27 to hold it securely, by friction, in the recess 25a. The microphone has concentric electrical connection pads on its lower surface to connect to spring fingers on the circuit board 23 underneath it irrespective of the microphone's orientation relative to the circuit board.

Circuit board 23 has a region 28 of exposed printed conductive zones for co-operating with conductive portions of keypad membrane 29 to provide a touch-sensitive keypad. When the membrane is fixed by adhesive to the circuit board flexible domed regions 29a of the membrane can be pressed to the circuit board to act as key switches for sensing pressure from a user. When the phone is fully assembled each domed region falls below one of the keys 24a of keymat 24 so that a user can actuate the key switches.

A translucent plastics frame 32 fits to the rear end of circuit board 23. The frame carries an LCD (liquid crystal display) unit 30 and a reflector 31. The frame defines a recess 32a dimensioned to receive a speaker 33. The speaker has sprung rear connectors which, when the phone is assembled and the speaker is pressed towards the circuit board connect to corresponding connection pads on the circuit board 23.

To assemble the phone, circuit board 23 is screwed by means of screws 40 to the rear housing 18, holding the circuit board 20 in place behind it in the recess 18a. Microphone 26 is inserted in recess 25a and held in place by the friction of its o-ring 27 against the walls of the recess; at the same time the connections to the microphone are made by the spring fingers. Membrane 29 is fixed by adhesive to the circuit board 23. The frame 32 is offered up to the rear end of circuit board 23 and display unit 30 is soldered to the circuit board 23 to make the connections to the display. Speaker 33 is then set in the corresponding

recess 32a, with its spring contacts against the speaker contact pads on circuit board 23.

Next gasket 34 is placed over the frame/display assembly to seal around the edges of the speaker 33 and display device 30. The gasket is formed of flexible rubber with sealing walls that surround holes 34a, 34b for the speaker and display device. The gasket also includes a projecting key portion 34c whose upper end, when the phone has been fully assembled, projects through hole 19a in the upper housing 19. The key portion is flexible and has a conductive coating of carbon ink on its lower end which can make contact with corresponding tracks on the circuit board 23 when the upper end of the key portion is pressed by a user.

A retaining frame 35 is then pushed into place over the gasket to hold the gasket, the speaker 33, the LCD unit 30 and the frame 32 to the circuit board 23. The frame 35 has a generally flat top surface 36 and side walls 37. The frame is stamped from aluminium sheet around 80µm thick. The top surface 36 of the frame has a hole 35a for the display, a hole 35b for the key portion 34a, a hole 35c for a locating pin 32b on the plastics frame 32 and a grille 35d of holes for the speaker 33. When the frame 35 is pushed into place it squeezes the speaker and the LCD unit between the circuit board 23 and the gasket 34. The side walls of the cover are forced out slightly and then spring back as clips 38, bent from the side walls 37, engage the lower surface of the circuit board 23. The frame 35 thus clips into place and by bending the walls outward again the cover can be removed if needed. The clips 38 then hold the frame to the circuit board 23 and by means of the frame the gasket, the display unit and the speaker are held to the circuit board 23. For security a screw 39 is then inserted through holes in the upper projection, the plastics frame 32, and the circuit board 23 and then into the lower housing 18.

The antenna 40 is screwed in place in the lower housing 18.

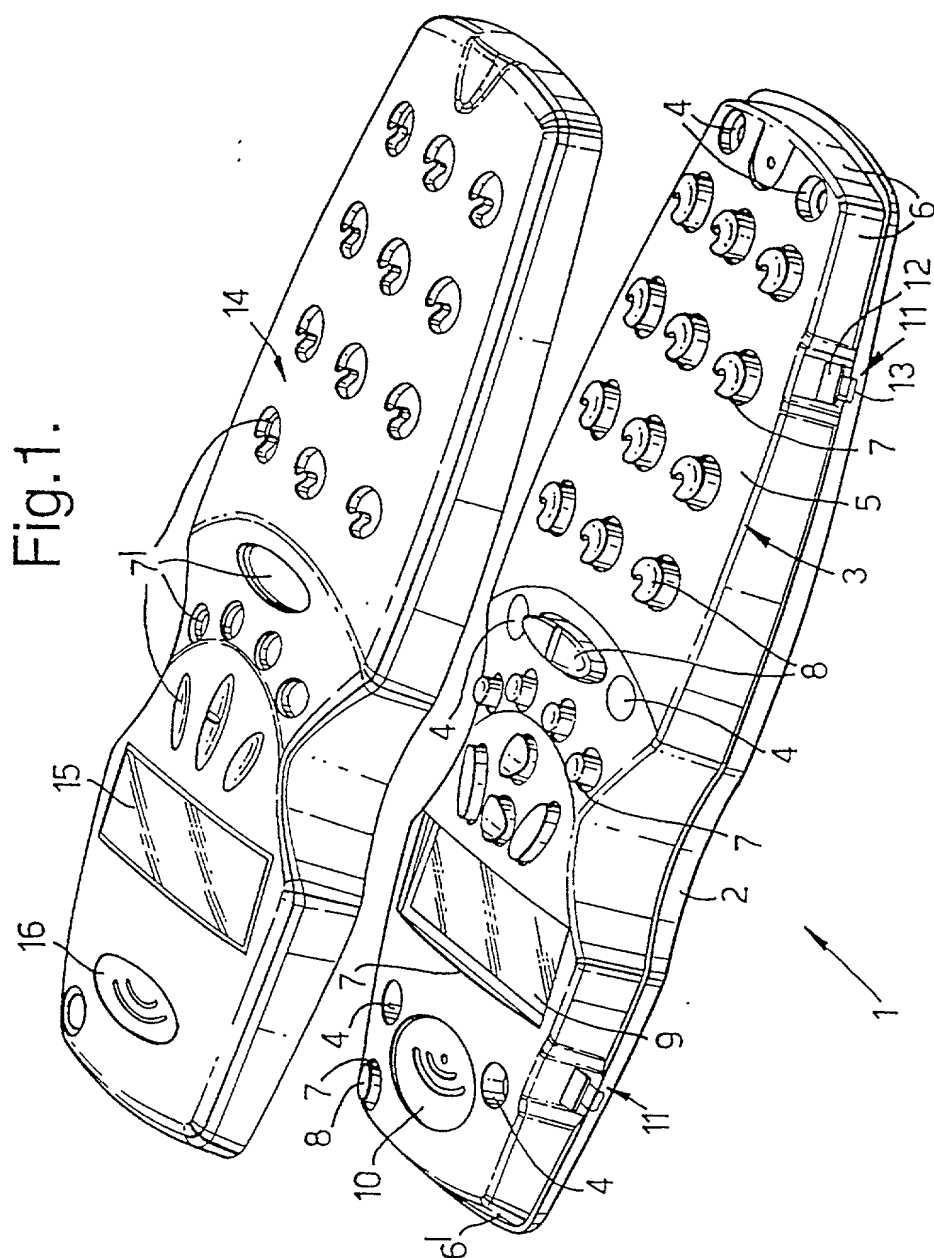
At this stage in the assembly process only two components of the phone are loose from the assembly mounted to the rear housing 18; the keymat 24 and the front 19 with its display window 41 fixed in place by adhesive. To complete the assembly process the keymat is sat on the membrane 29, the front housing is mated to the rear housing and the two are screwed together with screws 43.

The present invention may include any novel feature or combination of features disclosed herein either explicitly or implicitly or any generalisation thereof irrespective of whether or not it relates to the presently claimed invention or mitigates any or all of the problems addressed. In view of the foregoing description it will be evident to a person skilled in the art that various modifications may be made within the scope of the invention. For example, it will be appreciated that the invention may be applied to a wide range of electronic devices such as calculators and personal organizers as well as radiotelephones.

CLAIMS

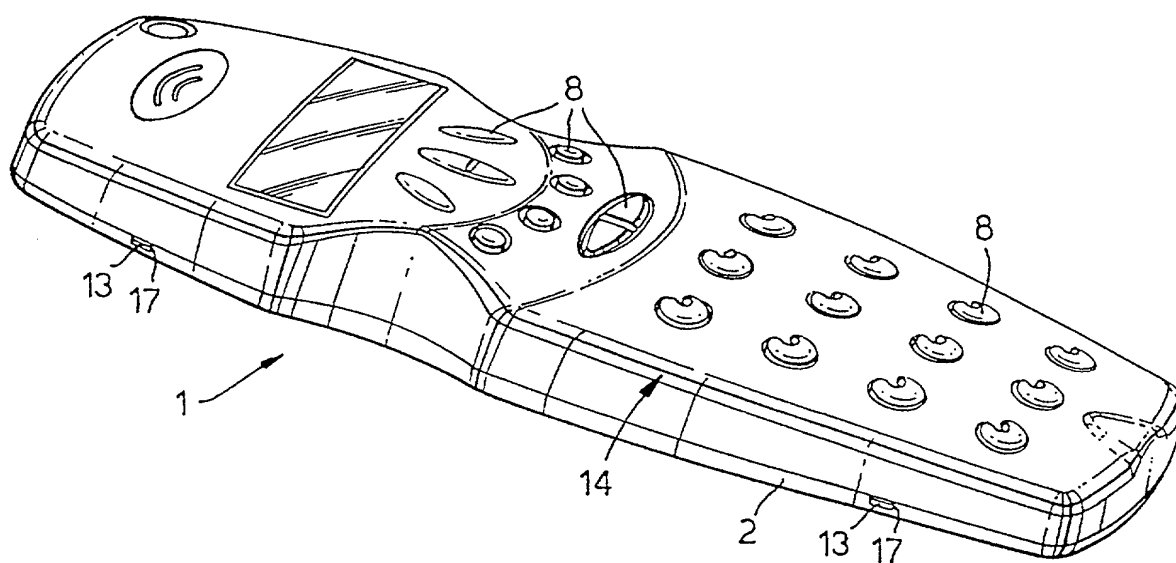
1. An electronic radiotelephone comprising:
 - a first housing;
 - a second housing releasably attachable to the first housing to meet with the first housing around the periphery of the radiotelephone; and
 - retaining means comprising a cover, for holding the electronic components of the radiotelephone to the first housing when the second housing is released from attachment with the first housing.
2. An electronic radiotelephone as claimed in claim 1, wherein the second housing is a user interface housing of the radiotelephone.
3. An electronic radiotelephone as claimed in claim 1 or 2, wherein the retaining means comprises a circuit board of the radiotelephone.
4. An electronic radiotelephone as claimed in claim 3, wherein at least one key sensor is provided on an outer surface of the circuit board.
5. An electronic radiotelephone as claimed in claim 3 or 4, wherein the cover is arranged to hold components of the radiotelephone between it and the said circuit board.
6. An electronic radiotelephone as claimed in any of claims 3 to 5, wherein the cover is releasably engageable with the circuit board
7. An electronic radiotelephone as claimed in any preceding claim, wherein at least one user interface component is retained by the cover.

8. An electronic radiotelephone as claimed in claim 7, wherein the cover includes an aperture overlying at least one user interface component retained by the cover.
9. An electronic radiotelephone as claimed in any preceding claim, wherein a sealing member is retained by the cover.
10. An electronic radiotelephone as claimed in any preceding claim, comprising at least one key unit for user-actuation of a key sensor, and wherein when the second housing is released from attachment with the first housing the key unit is free to move with respect to the first housing.
11. An electronic radiotelephone as claimed in any preceding claim, comprising at least one key unit for user-actuation of a key sensor, and wherein when the second housing is attached to the first housing the key unit is sandwiched between the second housing and the key sensor.
12. An electronic radiotelephone as claimed in claim 10 or 11, wherein the key unit is a key mat.
13. An electronic radiotelephone as claimed in claim 11 or 12, wherein the key sensor comprises a membrane switch.
14. An electronic radiotelephone substantially as herein described with reference to the accompanying drawings.



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Fig.2.



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Fig.3.

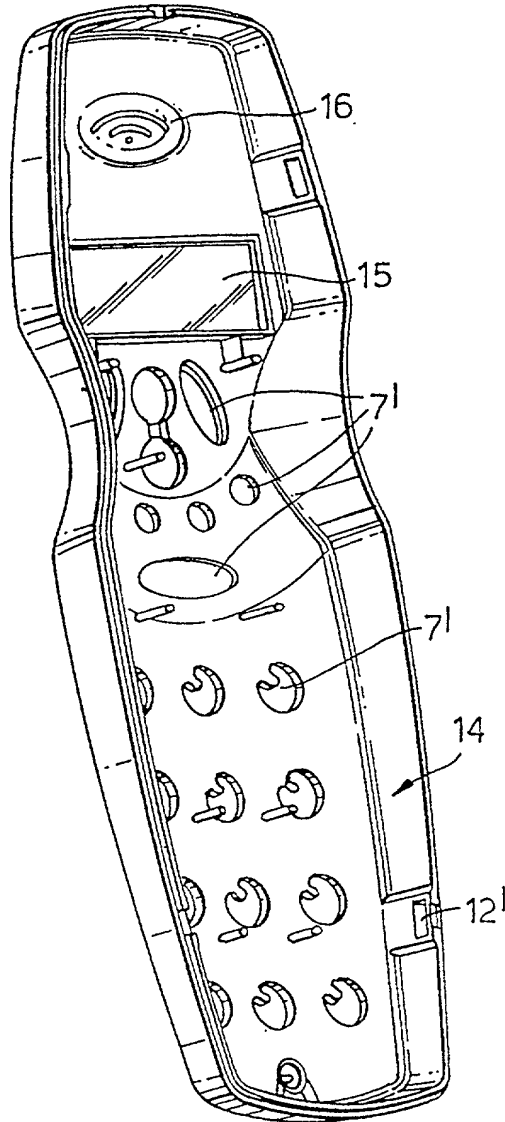
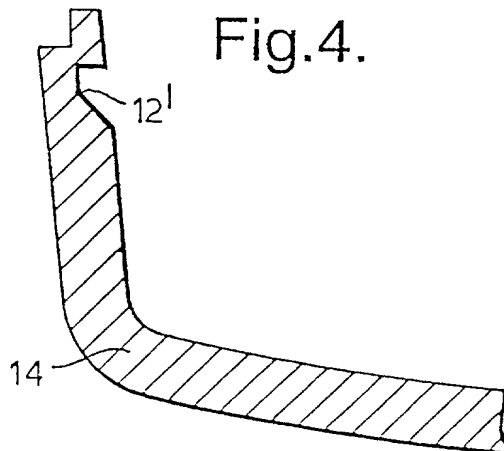


Fig.4.



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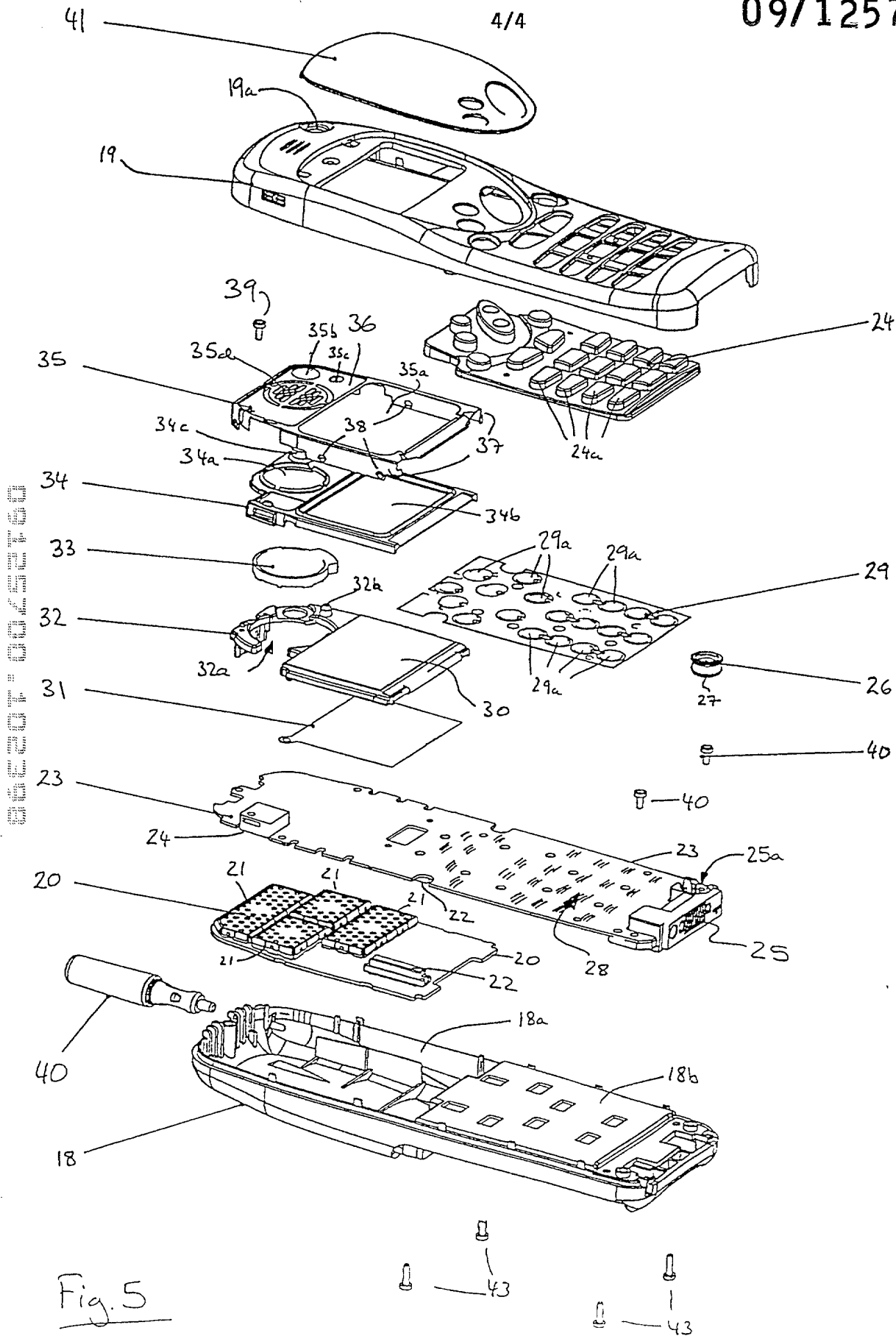


Fig. 5

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL,
CONTINUATION OR C-I-P)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type: (check one applicable item below)

- ☐ original
☐ design
☐ supplemental

NOTE: If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.

- ☒ national stage of PCT

NOTE: if one of the following 3 items apply, then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR C-I-P.

- ☐ divisional
☐ continuation
☐ continuation-in-part (C-I-P)

INVENTORSHIP IDENTIFICATION

WARNING: If the inventors are each not the inventors of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

RADIOTELEPHONE

SPECIFICATION IDENTIFICATION

the specification of which: (complete (a), (b) or (c))

- (a) ☐ is attached hereto.
(b) ☒ was filed on 24 August 1998 as ☒ Serial No. 09/125, 700
or ☐ Express Mail No., as Serial No. not yet known -----
and was amended on ----- (if applicable)

NOTE: Amendments filed after the original papers are deposited with the PTO which contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67.

- (c) ☐ was described and claimed in PCT International Application No. _____ filed on _____ and as amended under PCT Article 19 on _____ (if any).

ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information

- ☒ which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56
(also check the following items, if desired)

☒ and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent, and

- ☐ In compliance with this duty there is attached an information disclosure statement in accordance with 37 CFR 1.98.

PRIORITY CLAIM (35 U.S.C. § 119)

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT International application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT International application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

- (d) ☐ no such applications have been filed.
(e) ☒ such applications have been filed as follows.

NOTE: Where item (c) is entered above and the International Application which designated the U.S. itself claimed priority check item (e), enter the details below and make the priority claim.

**A. PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION
AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119**

COUNTRY (OR INDICATE IF PCT)	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 37 USC 119
EP	96102988.1	28 FEBRUARY 1996	<input checked="" type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>

**ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS
(6) MONTHS FOR DESIGN PRIOR TO THIS U.S. APPLICATION**

NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR C-I-P APPLICATION for benefit of the prior U.S. or PCT application(s) under 35 U.S.C. § 120.

POWER OF ATTORNEY

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(List name and registration number)*

7- Clarence A. Green (24,622)-
Harry F. Smith (32,493)-
Mark F. Harrington (31,686)
Thomas P. Dowd (24,586)-

Albert W. Hilburger (20,987)
John J. Goodwin (20,050)
Ralph D. Gelling (24,689)

(check the following item, if applicable)

☐ Attached as part of this declaration and power of attorney is the authorization of the above-named attorney(s) to accept and follow instructions from my representative(s).

SEND CORRESPONDENCE TO

Perman & Green
425 Post Road
Fairfield, CT 06430-6232

DIRECT TELEPHONE CALLS TO:

(Name and telephone number)

Mark F. Harrington

(203) 259-1800

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE(S)

NOTE: Carefully indicate the family (or last) name as it should appear on the filing receipt and all other documents.

Full name of sole or first inventor

Thomas

(GIVEN NAME)

(MIDDLE INITIAL OR NAME)

Fuhrmann

FAMILY (OR LAST NAME)

Inventor's signature

Date 22. Sept. 1998 Country of Citizenship Germany

Residence Dulmen/Buldern, Germany DEX

Post Office Address Buldergeist 48, D-48249
Dulmen/Buldern, Germany

Full name of second joint inventor, if any

Annett

(GIVEN NAME)

(MIDDLE INITIAL OR NAME)

Ortscheid (nee Wilke)

FAMILY (OR LAST NAME)

Inventor's signature

Date 22. Sept. 1998 Country of Citizenship Germany

Residence Bochum, Germany DEX

Post Office Address Castroper Str. 205, D-44791
Bochum, Germany

Full name of third joint inventor, if any

Dirk

(GIVEN NAME)

(MIDDLE INITIAL OR NAME)

Umbach

FAMILY (OR LAST NAME)

Inventor's signature

Date 22.09.1978 Country of Citizenship Germany

Residence Hildesheim, Germany DEX

Post Office Address Anton-Grebe Str. 47 D-31139
Hildesheim, Germany

CHECK PROPER BOX(ES) FOR ANY OF THE FOLLOWING ADDED PAGE(S) WHICH
FORM A PART OF THIS DECLARATION

- ☒ Signature for fourth and subsequent joint inventors. *Number of pages added* 1
...
- ☐ Signature by administrator(trix), executor(trix) or legal representative for deceased or
incapacitated inventor. *Number of pages added* _____
...
- ☐ Signature for inventor who refuses to sign or cannot be reached by person authorised under
37 CFR 1.47. *Number of pages added* _____
...
- ☐ Added page for signature by one joint inventor on behalf of deceased inventor(s)
where legal representative cannot be appointed in time (37 CFR 1.47).
...
- ☐ Added pages to combined declaration and power of attorney for divisional, continuation, or
continuation-in-part (C-I-P) application.
☐ Number of pages added _____
...
- ☐ Authorization of attorney(s) to accept and follow instructions from representative.
...

(If no further pages form a part of this Declaration, then end this Declaration with this page and
check the following item:)

☐ This declaration ends with this page.

ATTORNEY'S DOCKET NO. 200-008181-US(PAR)

**ADDED PAGE TO COMBINED DECLARATION AND POWER OF
ATTORNEY FOR SIGNATURE BY FOURTH AND SUBSEQUENT INVENTORS**

4-00
Full name of fourth joint inventor, if any

Ricky

(GIVEN NAME)

William

(MIDDLE INITIAL OR NAME)

Barnett

FAMILY (OR LAST NAME)

Inventor's signature R. Barnett

Date 15 Oct 98 Country of Citizenship Great Britain

Residence Hertfordshire, United Kingdom GBX

Post Office Address 17 Kendals Close, Radlett, Hertfordshire
WD7 8NQ United Kingdom

Full name of fifth joint inventor, if any

5-00
Terence

(GIVEN NAME)

(MIDDLE INITIAL OR NAME)

Johnson

FAMILY (OR LAST NAME)

Inventor's signature T.P. Johnson

Date 12/10/98 Country of Citizenship Great Britain

Residence Hampshire, United Kingdom GBX

Post Office Address 9 Marlborough Close, Fleet, Hampshire
GU13 9HY United Kingdom

Full name of sixth joint inventor, if any

6-00
Mark

(GIVEN NAME)

Robert

(MIDDLE INITIAL OR NAME)

Mason

FAMILY (OR LAST NAME)

Inventor's signature M. Mason

Date 16/10/98 Country of Citizenship Great Britain

Residence Hertfordshire, United Kingdom GBX

Post Office Address 11 The Sonnets, Gadebridge, Hemel Hempstead, Hertfordshire
HP1 3RS United Kingdom

Full name of seventh joint inventor, if any

7-00
Bruce

(GIVEN NAME)

(MIDDLE INITIAL OR NAME)

Samuels

FAMILY (OR LAST NAME)

Inventor's signature B. Samuels

Date 13/10/98 Country of Citizenship Great Britain

Residence Reading, Berkshire

Post Office Address 26 Avalon Road, Earley, Reading Berkshire
RG6 7NS, United Kingdom GBX

Full name of eighth joint inventor, if any

8-00
Tony

(GIVEN NAME)

(MIDDLE INITIAL OR NAME)

Horne

FAMILY (OR LAST NAME)

Inventor's signature Tony Horne

Date 14 Oct 98 Country of Citizenship Great Britain

Residence Hampshire, United Kingdom GBX

Post Office Address 56 Woodlands Road, Baughurst, Tadley, Hampshire
RG26 5NP, United Kingdom

(Added Page to Combined Declaration and Power of Attorney for Signature by Fourth and Subsequent Inventors [1-2])